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ENTRANCE TO THE STIKINE RIVER FROM POINT HIGHFIELD — POINT ROTHSAY AT THE RIGHT

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THE STIKINE RIVER IN 1898

By ELIZA RUHAMAH SCIDMORE

The Klondike excitement of 1897 turned attention to the Stikine river as affording an easy route through the Coast range of mountains to the interior of the Northwest Territory, since it was known that Indians, Hudson's Bay Company traders, and surveyors of the Western Union Telegraph Company had long ago used a trail from the upper Stikine across to the lakes and waterways leading to the upper Yukon.

The Stikine was not an unknown or undiscovered country, but only an abandoned one, as the discovery of gold in its river bars in 1861 and richer placers in the Cassiar country beyond in 1873 drew thousands of miners to summer camps, until the exhaustion of the richer placers, the need of machinery, and the discoveries elsewhere drew that fickle and floating population away. Steamers were withdrawn from the river ten years ago, the old camps disappeared in underbrush, and Ft Wrangell, the post of transshipment for all this trade and travel, fell away to a mere Indian village again.

The Klondikers appeared in numbers last January, and continued in an unending procession over the Stikine's frozen surface until the river opened in April, when a dozen light draft stern-wheel steamers, fitted with powerful engines, ran, crowded to the guards, for a few weeks. The Hudson's Bay Company put on some fine boats, and the Canadian Pacific Railway Company sent up a dozen steamers, all named for eminent Canadians, the two swiftest river boats on the Stikine appropriately bearing the names *Ogilvie* and *McConnell*, in honor of those two members of the Dominion Geological Survey. Glenora, the head of naviga-

tion, 125 miles from Ft Wrangell, and Telegraph Creek, 12 miles beyond Glenora, are starting points on the trail that leads through an open, hilly, and grassy country for 145 miles to Lake Teslin, whence there are no interruptions to boat navigation to Dawson City, a distance of 526 miles. Bills were introduced in the Canadian Parliament giving rights to convert the trail into a wagon road, and a great land grant was to be conferred on the builders of a railway. The railway to Lake Teslin was to be completed by September, and this "all-Canadian route" appealed to many, and especially to British fortune-seekers. A trail from Ashcroft, on the Fraser river, reaches the Stikine at Telegraph Creek, and many who ventured on this longest of all the land routes toward the Klondike district met with disastrous adventures in the great woods.

Ft Wrangell, Alaska, where the ocean steamers landed the all-Canadian army of gold-seekers, was crowded all winter and revived its prosperity of thirty years before. A "boom" of extravagant proportions was well on in March and collapsed by the end of May with distressing results, when the failure of the railway land grant measure resulted from the many political entanglements and jealousies at the Canadian capital. Ft Wrangell real estate took on absurd values while the boom lasted. The tide line was edged for a quarter of a mile with flimsy pine buildings and fragmentary footwalks on stilts; tents crowded upon every vacant spot and whitened the hillside. A score of saloons ran wide open, despite Alaska's severe prohibition laws; the most barefaced gambling games and swindling schemes were conducted on every side without concealment, and this "boom-town" of 6,000 inhabitants displayed all the worst features of such lapses in civilization. Without water supply, drainage, or sanitary measures of any kind, with all refuse dumped into the space before the first row of water-fronting buildings, and with the butcher slaughtering in the open before his shop, Ft Wrangell, in July, was more offensive, parading more filth and smells to the ground space, than any Chinese city I have visited. Great wharves and warehouses were built to accommodate the ocean and river travel, and the restrictions and complications of Canadian and American customs regulations in the bonding, transshipment, and interport carrying trade were endless. The declaration of war between the United States and Spain, even the certainty of it for some weeks beforehand, brought the Klondike rush to an abrupt end, the adventurous and restless Americans

seeing an easier vent to their eager spirits in enlistment, and investors and investigators prudently holding back to watch the fate of war. To one remembering how quickly and entirely the Klondike retreated from general view and interest in the eastern states, after the blowing up of the *Maine* even, it was not surprising to find that the expected summer rush to the Klondike had failed ; even Alaska tourists failed to come, and the fleet of steamers brought around Cape Horn for the busy summer expected would have entailed great losses upon transportation companies but for the sudden necessity of transports for the Philippine expeditions. About the same time that the stream of gold-seekers ceased coming the Teslin railway seemed doomed never to be built, and certainly not before the railway from Skagway over the White pass. The Teslin trail proved too long and too hard for many who had undertaken it, and the river boats that went up the Stikine empty returned crowded with angry and discouraged Klondikers. The angry ones went on to try the shorter routes to the Yukon from Lynn canal ; the discouraged ones sacrificed their outfits recklessly in their one wish to return to civilization. A dozen of the useless river steamers were boarded over at the bows and attempts made to tow them across that roughest part of the Pacific ocean to the Yukon river's mouth, but disaster attended nearly every one of these perilous tows in the open ocean, the seams parting under the strain of waves and hawsers, and the flimsy river boats going entirely to pieces or drifting ashore in hopeless condition.

While the Stikine boom lasted a first opportunity was afforded for pleasure travelers to comfortably view the magnificent scenery of that river, whose valley was aptly called by Dr John Muir "a Yosemite one hundred miles long," but only three tourists or actual pleasure travelers availed themselves of the chance, as far as the most diligent inquiries could establish the fact. Although so powerfully engined, the fleetest of the river boats could only average seven miles an hour against the furious current, making the average trip up to Glenora in eighteen hours, and returning in seven or nine hours, the boats always timing their departures so as to cross the flats at the mouth of the river at high tide, and navigating only during clear daylight. There were no old river captains or pilots surviving from Cassiar times to command this hastily constructed fleet, and the best "swift-water captains" came from the Kootenai, the Snake, and the upper Columbia and learned the Stikine route for themselves, "reading the water" as they went along.

From Pt Highfield, at the end of Etolin island, a few miles around shore from Ft Wrangell, one has a fine view of the imposing entrance to the Stikine splendors, snow-capped mountains towering above the evergreen headlands, and prolonged to westward in that magnificent range that fronts the Alaska tourist when he emerges from Wrangell narrows. Vancouver's men reached and named Pt Highfield; yet those admirable explorers, sent to the northwest coast expressly to find an unknown river, failed to discover the Stikine when their boats were in its muddy outflow, as they before failed to discover the Columbia and the Fraser, and it was left for the American Captain Cleveland to discover the Stikine in 1799.

Crossing the flats at the broad river's mouth, where fishing boats from the neighboring canneries were tending nets, and skirting close to the forested slopes at the right, our steamer followed along so near the banks that we breathed all the fresh, earthy smells, the fragrance of wet wood, mosses, and cedar plumes. Two miles within Pt Rothsay a little flat of intensely green grass at a creek's mouth is landing place for the canoes of those who go to visit the garnet ledge high up on the steep cliff front and blast off fragments of the dark gray mica slate dotted with big almandite garnets for the tourist market at Ft Wrangell.

Although the Stikine is such a swift river, its bed falling 540 feet between Glenora and Pt Rothsay, it is not deep save where compressed in its cañons. It wanders between its steep mountain walls, cutting out islands from one densely forested bank and the other, heaping driftwood on bars in midstream until they form islands and their thickets change to cottonwood forests. These islands are inundated each season and sometimes washed away in unusual freshets, and then the debris accumulates in other places and new islands divert the stream. Cottonwood island, a first such forested bar, was a busy place last winter, when steamers, canoes, and small boats, pushing through the loose river ice of the flats, landed the Klondikers at the lower end of the island, to begin their march over the solid ice that extended unbroken from the further point of Cottonwood's shores. Stikine City grew upon the snow; there was wild speculation in town lots, and tents crowded in lines between the trees and bushes, where sky-scraping business blocks were soon to stand; but the boom had burst by the time the frost was out of the ground, and the vegetation of one Alaskan summer effaced nearly all the traces of Stikine City's ground plan. Tales are

told of the Klondikers trembling and becoming breathless as they landed on Cottonwood's shores, as frantic and crazed as if Dawson City and the gold nuggets were in sight.

All along the Stikine there is such a panorama and sky line of snow peaks on either hand as would be enough to make the fame of a whole territory, save in Alaska, where scenery continues on such a scale and with such unusual features that one takes snow peaks and glaciers almost for granted, as obligatory, conventional backgrounds for every scene. The first object of special distinction along these river walls is the Popoff or Little Glacier, ten miles above Pt Rothsay, a narrow blue tongue thrust from great snow-fields and showing in profile beyond forested slopes, whose greens intensify the exquisite pale pure blue of this star-sapphire mass—this slender, steeply-plunging cataract of ice seemingly arrested on the mountain's side. It shows a dirty terminal moraine and a grimy forefoot to those who land and approach it, but from the river this blue ribbon, unrolled from the clouds and the snow-fields, is most exquisite of Stikine glaciers, the color of its hard clear ice divinely blue in the early morning, fading at midday, and intensifying again as the shadows stretch across it. With the windings of the river, one has the Popoff in view from many points as the boat progresses toward, faces, and manœuvres within range. None of the Stikine glaciers have been explored to their sources, mapped, measured, or studied in any sense, and they are virtually unknown glaciers, the region a paradise and happy hunting ground for the glacial geologist. Prof. W. P. Blake, the geologist, who chanced to be in Japan in 1863, was asked to accompany the corvette *Rynda*, which Admiral Popoff despatched to the American coast by order of the Czar to learn if Stikine miners were working within the thirty-mile strip of Russian soil, which had so long been leased to the Hudson's Bay Company. Professor Blake examined the bars and rock formations and made a running survey of the river, naming the glaciers and principal landmarks, and his map was published with his report on the Stikine as a congressional document at the time of the purchase of Russian America by the United States. Dr John Muir made a canoe trip up the river in 1879, "prospecting for glaciers" in a general way, and making notes and thumbnail sketches for his own entertainment. Canadian surveyors have made general maps of the river, and Messrs Tittmann and Ogden, of the U. S. Coast and Geodetic Survey, have surveyed and mapped the lower end of the Stikine in con-

nection with the surveys for determining the international boundary line; and to Mr O. H. Tittmann I am very greatly indebted for several of these accompanying illustrations, reproduced from photographs taken during the boundary survey.

The international boundary line has moved up and down stream on the charts for these thirty-odd years, and Canadian custom-houses and Hudson's Bay Company posts wandered with it, five different places having been accepted as the temporary boundary until a commission can determine it. The place last settled upon for the passing of the imaginary line is a few miles above the Popoff glacier, near the Great bend. In this past summer of 1898 the United States was temporarily and economically represented by a custom-house in a tent on the river bank, to whose canvas sides a small and faded flag was pinned, like an outworn towel. Two men and a dog constituted the American force, both men looking very weary, bored, and homesick, as one lounged down for his mail and fresh beef, and the other whistled in his doorway. There is a station of Canadian mounted police on the river bank a few rods beyond, an officer and twenty men occupying a group of hewn-log buildings on a knoll, with the red flag of the Dominion flying from a tall pole. Their storehouses were on the bank, and men in canvas working-clothes were putting company gardens in order and giving an appearance of permanency, trimness, and order to the edges of British domain.

The Iskoot river, which enters by a long, deep valley from southward, is said to present greater scenic spectacles along its way than even the Stikine river. The Stikine region is the best "bear country" on the northwest coast, and the finest grizzly, cinnamon, and black bears hold the Iskoot wildernesses almost undisturbed, since few sportsmen come this way. Mountain sheep, mountain goat, deer, and elk tempt the big-game stalker, to whom the Stikine and Iskoot would be perfect paradise were it not for the plagues of mosquitoes and gnats. The sharp needle-peaks of the lofty Glacier range are aligned along the Iskoot's course, and there are unnamed and untrodden peaks, passes, glaciers, and snow-fields to occupy Alpine club climbers for many years along the Iskoot's course.

The Orlebar or Great glacier of the Stikine shows first in distant profile as a grayish white mass pressing out between two mountain slopes and spreading in a great curving, fan-shaped front of boulders and dirty ice for fully two miles along the river

bank, the crest of one terminal moraine towering in cliffs of debris far above the tree tops of the river bank. Beyond this first forested edge of the river, there is a lake or backwater cut, on which moraines and ice slopes front, and the steamers pass more than a mile away from the ice itself. When directly abreast of the Orlebar, one can see its grayish surface, striped with the fine lines of medial moraines and cross-hatched with the seams of crevasses, sloping up and disappearing through further gaps toward great snow-fields half seen on the shoulders of distant peaks. This glacier has been visited by several geologists, but none have had time to explore it back to the source of its main stream, to follow its tributary branches, to note its rapid motion, or arrive at any idea of its recent retreat and shrinkage. Two young Russian officers once came down from Sitka to explore it, but never returned from their expedition, and prospectors are said to have been lost in its crevasses. Miners who knew it in early Cassiar days, when there was a busy trading station at the hot springs on the opposite side of the river, claim that the front has receded and the whole glacial mass shrunk surprisingly, and Dr John Muir's visit in 1879, although but a reconnaissance, proved to him a very rapid recession within recent times.

A small glacier descends through a gap on the opposite shore directly facing the Orlebar, fed by the snow-fields of Mt Laura, which is so perfectly framed in the opening, and Indian traditions tell that this little glacier once joined with the Orlebar and the river ran through a tunnel in the ice. The Indians, who had come down stream from the interior, were convinced by the annual runs of strange fish that the river must reach the sea, and chose the two oldest members to test the theory—since these aged ones must soon die anyhow. The veterans ran the tunnel safely, and, returning in due time, were held in great veneration for the rest of their lives.

From Orlebar glacier on to the Little cañon, the Stikine presents its most splendid panorama on either hand. The scenery is on such a scale and of such magnificence, with hardly an interval of ordinary or commonplace mountain scenery, that one loses all measure of comparison and hardly appreciates to the full the unusual grandeur of his surroundings. There are glaciers everywhere and of every type—hanging on the mountain side, plunging down ravines and through gaps, curving around spurs, fretting and pricking through the surface of vast snow-fields, and everywhere debouching toward the river's edge in

LITTLE CANON OF THE STIKINE RIVER — SAWBACK RANGE IN BACKGROUND

spreading fans of boulders and muddy ice. One can count a dozen great glaciers at once from a certain point of view, and easily accepts Dr John Muir's count of 100 glaciers seen from his canoe, and of 300 glaciers seen by climbs and tramps ashore, all draining directly into the Stikine. There is a feast and almost a surfeit of glaciers in the next fifty miles, the Dirt or Mud glacier, greatest of all, being almost the replica of the Orlebar glacier, save that it is a dirt covered, dark-brown mass instead of a dirty white one. The Dirt glacier remains longer in view, by the serpentine windings of the river, than any one object save the Eagle crag, a great, detached, snow-striped peak with a triple, sharply dentated crown, that one sees ahead, to right and left, in foreground, background, full front, and profile all day long; this peak and the earth-covered glacier omnipresent appearing and reappearing from new points of view, to the utter confusion of one's compass and topographical ideas. There was a superb view, too, of Kate's Needle, over forested points and river foregrounds, as its dark summit pricked sharply through snow-fields to the very sky. There is one superb glacier, just above the Dirt glacier, whose névé is held in a broad amphitheater, whose retaining walls are buttressed on the further side by the finest arrangement of peaks and palisades seen anywhere along the Stikine; and in some far recess near there hides that mysterious Flood glacier, which several times each season breaks away a natural dam and sends a torrent of muddy water roaring out to the river, sensibly raising its level for a time.

We had met signs of the recent rush of Klondike travel all along the Stikine banks, rows of cordwood neatly piled showing as melancholy reminders of abandoned camps and hopes and ventures. Shrewd Klondikers who went up on the snow cut wood diligently, counting upon quick returns for their labor when the fleet of river steamers and the campers in small boats should come in the spring. All the Canadian Pacific boats burned coal and kept their extra supplies on anchored boats along the river. The Hudson's Bay Company had gangs of Chinese cutting cordwood for their boats long before the ice moved, and the independent prospectors in canoes were few. Signs of "Wood and water," "Wood for sale," and the laconic "$4.50 per cord," or only "$4," met one along the banks—monuments of wasted energy, with pitiful epitaphs.

Wherever the valley broadened and the river ran its most serpentine course there were acres of bleached logs and tree roots

stranded on bars and banks—enough fuel gone to waste to supply all the river boats and the people of a great city; and each day the remorseless current cut further into some wooded bank and sent other tall cottonwoods to snags and driftwood. One longed to make a grand bonfire of these unsightly skeletons strewing every bar; but the two snag-boats at work on the river had too much real and necessary work to do. In some stretches the banks seemed to be upholding groves of elms, where the river had washed away the front ranks of cottonwoods and brought to view the tall elm trees that had had to struggle upward in the crowded forest without lower branches, spreading out in great arching crowns that had all the grace of New England elms.

There were novelties in navigation on board the *Ogilvie* that gave great interest to the Stikine trip, as the "swift-water captain" sought channels and fought the stiff currents that charged around bends and combed against the bows of the river boat as if she were at sea. He "read the water" by a dozen signs, even the different wheezes, groans, and panting of the engine declaring the depth of water to his trained ear, and the swell rolling away at either side another sign telling the depth as certainly as a lead plummet. At each riffle he steered into the midst of the foam where the current ran strongest, and in some of these places, where the river raced in a narrow channel, the water stood higher in midstream than at either bank, and the boat rode high on the turtle-backed flood.

Just below the dreaded Little cañon the *Ogilvie* crept up beside the anchored coal-boat and took on more fuel. We could look straight up the quarter-mile rock flume, whose sides rise perpendicularly for less than 100 feet and then slope away into wooded foothills, far above which towers the great sky-line of the Sawback range, the continental divide. A white disk shot out from a tree branch overhanging the cañon's mouth as signal to our boat that the way was clear to ascend, the reverse of the disk showing a black warning to any boat at the upper end that it must not enter, since two boats cannot pass in that narrow cut, where the broad river is compressed and turned on edge. The incline of foaming water between jagged rock walls that approach within 60 and 100 feet of each other was running with a mild current—only a little over 10 miles an hour that day—and with full steam and forced draught our boat was able to climb the hill of running water in thirteen minutes. In flood times

steamers were forced to wait for the fury to subside and to "line up" by reeling in on the capstan wire cables fastened to the largest trees ashore. There was a deafening roar from the boilers and the boat shook as if all its upper works would be loosened, while it worked its way upward, dipping, careening, quivering in all its solid frame, and shipping waves at the bows, and there was more personal excitement and tension in this struggle with the Stikine's fury than we had any idea of until we came out to wider and slower reaches and tied up for the night.

GLENORA FROM THE LANDING

We were then "over the range," "east of the mountains," "across the divide," and there was a great difference in the character of the country. There were grassy benches and hills, stretches of burned forests, and every sign of a scorching, dry, interior climate. The Kloochman's cañon, named because the Indian canoeman, exhausted with his day of frantic tracking and paddling through the Little cañon, leaves this bit of navigation to his *kloochman*, or squaw, was only a stiff millrace of water running for one or two hundred yards between green banks. We easily surmounted its slope, and turning sharply

where a bald cliff met the flood, speedily climbed the Big riffle of the Stikine—only a stretch of dashing rapids over a stony bed. Green benches or terraces along the river bank, open and grassy stretches, with towering peaks in the background, gave one the idea of approaching civilization again and the group of log-houses and buildings at Hudson's Bay Flats, or Shakesville, seemed quite in keeping. A great sign on the banks of "Cassiar Central Railway" marked the terminal or initial point of that enterprise, the great trunk road whose fortunes were then balancing—whether to be or not to be. Two miles beyond, Glenora showed a row of log-houses along the river bank, with innumerable tents beyond, and a most discouraged, homesick-looking company of men straggled to the mud bank to watch the tying-up, every man with both hands pocketed. The postmaster carried his mail-bags ashore, the mounted police watched the landing and stowing far above the water line of the dressed lumber and fittings for the gold commissioner's ready-made house, and Glenora subsided into the stagnation of a rainy Sunday in a mining camp whence the boom had twice fled.

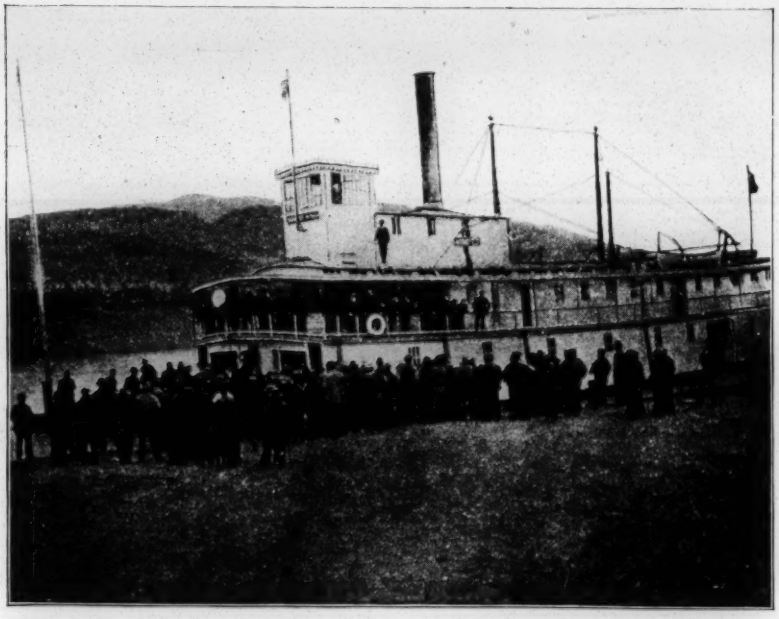
Glenora, "the lively camp" of so long ago, had been galvanized to a far livelier condition in the spring of 1898, to fall away again as the difficulties of the long, boggy Teslin trail became known, and as the chances for wagon road and railway building lessened, the army of the disappointed, the faint-hearted, and also the sturdy ones bent on trying the other trails from points further up the coast, had all gone from Glenora, and there remained only those who could not get away and those who felt themselves fixtures there. Everything on the bank was for sale, apparently—tents, blankets, provisions, horses, mules, dogs, sleds, snowshoes, aluminum boats, harness, pick-axes, shovels, pans, forges, quicksilver, and scales—so rough notices at every door-sill and tent-flap told. Great tents served as hotels, stores, and storage warehouses, a charge of five dollars a ton each month leaving these storage depositories banked full of overdue trunks and valises containing the civilized clothes of those gone on into the wilderness, and of "outfits" for which there were no means to have carried over the trail with the owners at the time of the rush, and no claimants later. The reckless extravagance of the mad Klondikers surpasses anything told of them, even their cruelty to animals, and outfits that cost hundreds of dollars were thrown away and left behind at Glenora in the mad race for Dawson, or in the discomfited return toward civilization, while thousands

of dollars went to the bottom of the Stikine through breaking ice, overturned canoes, flooded camps, and caches. There were at least four dogs to each inhabitant of Glenora—splendid, shaggy animals that sported in the swift, cold river and breasted its six-mile current in pursuit of sticks in sheer excess of strength and spirits. Nearly all of them had been over the Teslin trail, each one carrying a fifty-pound sack of flour on his back or dragging a three-hundred-pound sled-load over ice and snow, worn to skin and bones by such long-continued exertions and hardships on scant food. These dogs were then living in plenty at Glenora, and were evidently well cared for by kind owners, to judge from the way they capered and jumped and barked around certain men who lounged along the one river bank road; but the tales one hears of the inhuman cruelties to animals inflicted along all the Klondike trails would put a stain upon any gold that is ever brought out of the district. "It was a trail of blood from Stikine City to Glenora, and I never want to see such sickening sights again," one rough frontiersman summed it up. Ignorance, greed, and callousness were evenly combined in this inhuman work. Every kind of a dog was bought or stolen in the States and brought up in midwinter on the open steamer decks, where the half-fed creatures were crowded together in sleet, snow, rain, and bitter winds without shelter or drink. Tied in strings to the fences, they were left to howl the nights out at Ft Wrangell, and were in poor condition to pull the cruel loads when driven off over ice and snow to be beaten, clubbed, and kicked as long as they could stand in harness. All animals were treated as cruelly—horses and oxen brought to Ft Wrangell without food or drink on the way, and left as uncared for on the river steamers, until certain humane captains took the matter in hand, broke into the bales of fodder that the owners were saving for use on the trail, and under threats made those owners give water to the animals crying with thirst as the river ran beside them. The owner of a flock of goats tied them to the Ft Wrangell wharf stringers at low tide and returned to find them all drowned by the usual eighteen-foot rise of water, the crowds of wharf loafers having enjoyed the spectacle as their idea of a joke on the poor distracted goat herder, who had put his every dollar into this Klondike venture.

There was no movement of pack-trains out over or in from the trail for the two days the *Ogilvie* waited at Glenora, and a few incoming packers reported that the corduroying of the bogs

between the succession of stony hills had been completed for some 30 miles, nearly to the Hudson's Bay Company's post, and that the detachment of mounted police at Lake Teslin were rapidly putting up their buildings and laying out a permanent post.

The current is very swift between Glenora and Telegraph Creek, twelve miles above, where the Teslin trail strikes away to northward, and as there was no freight to carry and no passengers to be called for, we did not see that last outpost reached by the Western Union Telegraph Company's wires in 1866, when their



THE STEAMER AT GLENORA

surveys for a land line across Siberia to Europe were brought to an end by the success of the Atlantic cable. A distracted packer, however, visited the steamer to know for how much less than one dollar each mule the *Ogilvie* would go to Telegraph Creek and ferry across 75 mules that he had successfully driven up from Ashcroft, on the Fraser river, but the purser could not figure out any profit for the steamer to undercut the local canoe ferry prices, and the mule owner was the picture of despair. Above Telegraph Creek the Great cañon of the Stikine extends for 50 miles, a deep gorge, with terrific rapids and bends, which

cannot be traversed save on snowshoes, and which by its inaccessibility is safe in the reputation it has of holding the wildest scenery of the Stikine region.

The river rose five feet the second night, in consequence of rains in the Dease Lake country, floated the steamer across the little wharf to which it was tied, and nearly carried away the lumber for the gold commissioner's house before the boat's watchman could arouse a salvage corps. When we left Glenora that morning, it was a new sensation to fly past the banks so rapidly, the engine only making play of the downstream journey. We shot the Little cañon in less than three minutes, where we had struggled thirteen minutes on the way up, the *Ogilvie* drawn in with the sweep of the current under half steam, and then, with snorts, roars, and wheezes of full steam under forced draught, steering a mid-course through the eddies and dashing waves of that narrow chute, the most exciting and dangerous piece of navigation in Alaska. The peaks and glaciers whirl past in their different rearrangements, and in the earliest afternoon, seven hours after leaving Glenora, we had accomplished the serpentine 125 miles and were fast at the Ft Wrangell wharf, the *Ogilvie* and all the boats of the line then receiving orders to abandon the Stikine and Alaska route. The "all-Canadian" and the Klondike incident closed abruptly, and this river of rivers, this culmination and epitome of Alaskan scenery, this most magnificent stretch of peaks and glaciers along any watercourse of the continent may not again be accessible to easy pleasure travel as in the fitful season of 1898.

In his annual report to the Department of State, Consul Merrill, of Jerusalem, says that ten years ago there were very few carriages in Jerusalem, but now that the Yafa (Jaffa) road is in good condition and the road to Jericho, the Dead sea, and the Jordan is opened up—also that to Bethlehem and Hebron—there are scores of carriages, and the number is constantly increasing. A carriage road has recently been constructed from Jerusalem to the top of the Mount of Olives, and one is to be built from Jerusalem to Nablus, a manufacturing city of 20,000 inhabitants on the site of the ancient Shechem, 32 miles north.

THE U. S. BOARD ON GEOGRAPHIC NAMES AND ITS FOREIGN CRITICS

In the November number of THE NATIONAL GEOGRAPHIC MAGAZINE, under the title "Geographic Aspects of the Monroe Doctrine," is quoted a passage from Petermann's Mittheilungen, 44 vol., 1898, wherein exception is taken to the action of the U. S. Board on Geographic Names in deciding certain cases of disputed nomenclature in Canada. Concluding, the writer says:

> "Even admitting the correctness of these changes, exception must be taken to such action in regions which do not belong to the United States. The greater part of these names belong to Canadian territory, where American officials, in spite of the Monroe doctrine, have nothing to say, and where undoubtedly the Canadians have the exclusive right to give the names."

The United States Board on Geographic Names assumes to control usage only so far as concerns the publications of the United States government. Canada will doubtless continue to spell these names as she chooses, and when she settles upon their spelling the United States Board will probably accept her decisions, in accordance with its general policy. But at the time these decisions were made there was no uniform usage in regard to these names, even in Canada, and it was necessary, to meet our own needs, to clear up this confusion in nomenclature.

While we are on the subject, it may be pertinent to ask why Petermann's Mittheilungen persists in attaching to geographic features in the United States names different from those by which these features are universally known to the people of this country. For instance, it calls the country itself, not United States, but Vereinigte Staaten; the Rocky mountains, Felsen Gebirge, etc. It is no defense to say that these are translations, for proper names are not susceptible of translation. Mr Baker would very properly object to being addressed by a Frenchman as M. Boulanger.

This practice is not confined to the Mittheilungen, or to Germany; every people does the same thing. Most of the principal countries, cities, rivers, etc., of Europe are known to the people of other countries by names different from those by which they are called by the inhabitants themselves.

H. G.

THE WEST INDIAN HURRICANE OF SEPTEMBER 10–11, 1898

By Prof. E. B. Garriott,

U. S. Weather Bureau

That Providence favored the American arms in the recent war with Spain appears from the fact that during the entire period of hostilities our fleets in West Indian and Southern waters were not endangered by tropical storms.

During the investment of Santiago, when a hurricane visitation would have resulted in damage and perhaps disaster to the American fleet and consequent appalling losses to our land forces in subsequent blockading operations along the coasts of Cuba and Puerto Rico, and finally during the dispersion of the naval forces and the transportation to our shores of a large portion of the army of invasion, no serious storm interfered with the fulfillment of American designs; and it was not until an attempt was made to naturalize the *Maria Teresa* that the weather failed to coöperate with the plans of the United States Navy. As a matter of fact, and in a seeming safe extension of the favor bestowed, the hurricane season has passed without the occurrence in or about Cuba or Puerto Rico of a violent atmospheric disturbance.

The single West Indian hurricane which did occur during the season of 1898 confined its ravages to Barbados, St Vincent, and St Lucia, islands of the Windward group. Like many other disturbances of this type, this hurricane had its origin in the region of equatorial rains far to the eastward of the Windward islands. Reports at hand show that it was first encountered at midday, September 9, in latitude north 12° 2′, longitude west 54° 2′, by the French barque *Tourny*, Captain Mortois commanding. This vessel experienced strong northeast winds with heavy sea swells during the afternoon of the ninth, and from 4 p. m. the barometer fell one-tenth inch an hour and reached a minimum of 29.35 at 7 p. m. This hour marked the time of the passage of the storm's vortex. The wind went to southwest blowing exceedingly strong, and by 11 p. m. the air had become relatively calm, although tremendous seas continued. The vessel lost all sail, and her cargo of rice was almost a total loss.

At Barbados the premonitory signs of a hurricane became manifest during the morning of September 10. Cirrus clouds which had been moving rapidly from the south changed formation to strato-cumulus and nimbus from the northeast early in the forenoon. The wind backed from northeast to north, and a heavy sea swell ran from the southeast. The usual rise in the barometer was followed after 11 a. m. by slowly decreasing pressure. From 6 to 9.20 p. m. the barometer fell rapidly to a minimum of 29.462 inches, and the wind increased in force in frequent violent squalls until 10.18 p. m., when the anemometer was blown down during a gust which had a registered velocity of 75 miles an hour. At 11 p. m. the wind changed to north, and, in the opinion of the Weather Bureau observer at Bridgetown, much higher velocities were attained between 11 p. m. and midnight than at any other time. After 11 p. m. the gale abated, but continued strong until the morning of the eleventh. The report of the observer shows that a very remarkable electric display, without thunder, continued during the storm, and that in the southwest, at an apparent great distance, a brilliant, permanent light appeared. The rainfall was very heavy, a depth of 11.42 inches having been measured from 6 p. m. of the tenth to 10.30 a. m. of the twelfth.

From Barbados the hurricane center moved westward and reached St Vincent and St Lucia late in the forenoon of the eleventh. A report made by Mr H. Powell, Curator, Botanical Gardens, St Vincent, shows that during the morning of the eleventh the barometer fell very rapidly to a minimum of 28.509 inches at 11.40 a. m., at which point it remained nearly stationary until 12.30 p. m., and then rose rapidly to 29.533 inches by 3 p. m. Between 11 and 11.40 a. m. the velocity of the wind was 50 to 60 miles an hour from points between north and west, and between 1 and 2 p. m. the wind velocity was estimated at 90 to 100 miles an hour, from the south and south-southwest. From from 9 a. m. to noon 4.94 inches of rain fell. The rain continued in torrents until 3 p. m., but an accident to the gauge prevented further measurements.

After having crossed the Windward islands the storm diminished rapidly in intensity, and its effects were not severely felt in neighboring and more northern islands except in the form of heavy sea swells and torrential rains.

Figures furnished by the observer at Barbados show that the hurricane of 1898 did not compare in point of severity with a hurricane which visited that island August 10–11, 1831. Dur-

ing the storm of 1831 1,477 persons were killed outright, 310 were injured, of which number 114 died, and property to the value of $7,397,532 was destroyed. During the storm of 1898 83 lives were lost, about 150 persons were injured, and the estimated value of property destroyed was $2,500,000. At St Vincent the storm of the present year was pronounced in every way far more destructive than the hurricane of 1831. Accounts agree that these storms stand as the record hurricanes of the Windward islands, compared with which all others experienced in those islands have been comparatively unimportant. A notable feature of the storm of the present year was the period occupied by the center, or vortex, in crossing the island of St Vincent; it appeared to poise, or hover, over that locality about three-quarters of an hour. This fact indicates that the center made, or attempted to make, a recurve at that point; and one of the known characteristics of cyclonic storms is that they develop their greatest strength during recurves.

In all descriptions of hurricanes particular mention is made of the premonitory signs of their approach. These signs are found in the sea, in the wind, and in the clouds. The sea, rendered tumultuous by the terrific, confused winds about the storm's vortex, becomes disturbed and runs in swells far in advance of the body of the storm; the winds increase in gusts, and as a rule converge toward the vortex; and high cirrus clouds, carried forward by the upper air currents, are observed many hours in advance of the storm's arrival. The most important indication is, however, found in the action of the barometer. In that portion of the storm's vortex which may be termed its periphery the air is, as it were, piled up by the centrifugal force exerted about the cyclone's core. This action causes a slight but well-marked rise in the barometer, which in hurricanes of average diameter and speed precedes the arrival of the center by several hours. This rise is quickly followed by a rapid fall in the barometer, with increasing seas coming from the location of the storm center, and cirrus clouds change quickly to heavy, rapidly moving, lower clouds, which usually move in a direction almost perpendicular to a trajectory of the storm's path. In many instances the lower clouds precede the arrival of the vortex one to two days, rendering upper cloud observation after the first signs of cirrus impossible.

In this brief review it may be of interest to note the relative frequency of hurricanes in the several islands of the West Indies.

Available records show that, considered singly, the islands of the Lesser Antilles are comparatively free from hurricane visitations, and that the occurrence of destructive storms increases westward over the Greater Antilles to central and western Cuba, not for entire islands, but for corresponding areas. The cause of the varying frequency of hurricanes in different parts of the West Indies is found in a consideration of their average paths. Practically all the storms of the Lesser Antilles move westward in very narrow paths, and the proportion of storms that recurve northward is increased with increasing longitude until central and western Cuba is reached, where a fairly well-marked region of maximum frequency and recurve is found. Again, many of the storms that reach the Greater Antilles, and more especially Cuba, have their origin over the Caribbean Sea, and move thence northwestward toward Cuba or the Gulf of Mexico.

As regards the relative likelihood of hurricanes for the several months of the stormy season, it is shown that the tracks of West Indian cyclones shift further to the northward and westward as the season advances, and that while August and September are more likely to produce hurricanes in the Lesser Antilles and the more eastern of the Greater Antilles, the chance for hurricanes in Cuba is greater in September and October. In referring to this general law, the late Rev. Benito Vines, S. J., remarked as follows: "This fact is of such ancient belief that the ecclesiastical authority from time immemorial wisely ordained that priests in Puerto Rico should recite in the mass the prayer 'Ad repellendat tempestes' during the months of August and September, but not in October, and that in Cuba it should be recited in September and October, but not in August, all of which proves that the ecclesiastical authority knew by experience that the cyclones of October are much more to be feared in Cuba, but not those of August, and that in Puerto Rico, on the contrary, the hurricanes of August are disastrous, while those of October are very rare."

The limits of this article will not permit a discussion of theories regarding the origin of tropical storms or the laws and conditions which govern their movements. The regions in which they have their origin and the paths which they commonly follow have been referred to, and in conclusion it may be stated that all their movements, considered normally, are apparently influenced or governed by the trade winds and the position of the Atlantic anti-cyclonic area.

COLONIAL SYSTEMS OF THE WORLD

By O. P. Austin,

Chief of the Bureau of Statistics, U. S. Treasury Department

Recent discussion in this and other countries renders timely any convenient summary of the colonies, colonial policies, and results of colonization throughout the world. As a first attempt to meet current needs, the following facts and figures have been compiled from the best available sources: *

The colonies, protectorates, and dependencies of the world number 125. They occupy two-fifths of the land surface of the globe, and their population is one-third of the entire people of the earth. Of the 500,000,000 people thus governed, over three-fourths live between the tropics of Cancer and Capricorn, or within what is known as the Torrid Zone, and all of the governing countries lie in the North Temperate Zone. Throughout the globe-encircling area known as the Torrid Zone no important republic or independent form of government exists save upon the continent of America.

The total imports of the colonies and protectorates average more than $1,500,000,000 worth of goods annually, and of this vast sum more than 40 per cent is purchased from the mother countries. Of their exports, which considerably exceed their imports, 40 per cent goes to the mother countries. Large sums are annually expended in the construction of roads, canals, railways, telegraphs, postal service, schools, etc., but in most cases the present annual expenditures are derived from local revenues or are represented by local obligations. The revenues of the British colonies in 1897 were £151,000,000 and their expenditures £149,000,000. While the public debt in the more important and active of these communities aggregates a large sum, it is represented by canals, railways, public highways, harbors, irrigation, and other public improvements intended to stimulate commerce and production, the railroads in operation in the British colonies alone aggregating 55,000 miles.

The most acceptable and therefore most successful of the colonial systems are those in which the largest liberty of self-govern-

* The subject is treated at greater length in the "Summary of Commerce and Finance" for December, 1898 (issued by the Bureau of Statistics, Treasury Department).

ment is given to the people. The British colonial system, which has by far outgrown that of any other nation, gives, wherever practicable, a large degree of self-government to the colonies; the governors are in all cases appointed by the Crown, but the law making and enforcing power being left to legislative bodies which are elected by the people where practicable, in minor cases a portion being elected and a portion appointed, and in still others the appointments divided between the British government and local municipal or trade organizations, the veto power being in all cases, however, retained by the home government. The enforcement of the laws is intrusted to courts and subordinate organizations, whose members are in many cases residents or natives of the communities under their jurisdiction. In the French colonies less attention is given to law-making and administration by local legislative bodies, the more important of the colonies being given members in the legislative bodies of the home government. In the Netherlands colonies and in the less advanced communities under British control the laws and regulations are administered in conjunction with native functionaries.

Of the 125 colonies, protectorates, dependencies, and "spheres of influence" which make up the total list, two-fifths belong to Great Britain, their area being one-half of the grand total and their population considerably more than one-half of the grand total. France is next in order in number, area, and population of colonies, etc., though the area controlled by France is but about one-third that belonging to Great Britain and the population of her colonies less than one-sixth of those of Great Britain.

Commerce between the successful colonies and their mother countries is in nearly all cases placed upon practically the same basis as that with other countries, goods from the home countries receiving in the vast majority of cases no advantages over those from other countries in import duties or other exactions of this character affecting commerce. In the more prosperous and progressive colonies the percentage of importations from the mother countries grows somewhat less as the business and prosperity increase. The chief British colonies in North America (Canada and Newfoundland), which in 1871 took 50 per cent of their importations from the home country, took in 1896 less than 30 per cent from the United Kingdom; those of South Africa (Cape Colony and Natal), which in 1871 took 83 per cent from the home country, took but 71 per cent in 1896; those of

Australia and the adjacent islands, which in 1876 took 48 per cent from the home country, in 1896 took but 40 per cent. The French colonies now take from the home country about 42 per cent of their total imports, while the British colonies obtain about 43 per cent of their total imports from the home country.

Regarding the effect of a well-administered colonial system upon the commerce of the mother country, the following facts seem to be just now interesting and suggestive:

The non-British world buys 15 per cent of its total foreign merchandise from the United Kingdom; the British colonial world buys 43 per cent of its foreign merchandise from the United Kingdom. The total imports of the British colonies amount to 215 million pounds sterling annually. Great Britain, by supplying 43 per cent of this instead of 15 per cent, which she averages in the commerce of other countries, makes an additional market for 60 million pounds sterling annually of her products. Her total exports to foreign countries (omitting the colonies) are 206 million pounds sterling, or 15 per cent of their total imports, and if to this were added a like percentage of the imports of the colonies her total sales would be 238 million pounds sterling instead of the grand total of 296 million pounds sterling which she enjoyed in 1896, the year to which these figures relate. It is thus apparent that her sales are enlarged through her colonial system in the sum of about 60 million pounds sterling in round figures, or 300 million dollars per annum, thus increasing by 25 per cent her total exports, and creating by her colonial system a market for 300 million dollars' worth of her products and manufactures.

Not only has Great Britain added to her market by bringing the 350 million people of her colonies into the colonial relationship, but there has evidently been, through the material development which has followed this relationship, a great increase in the purchasing power. The construction of highways, harbors, railways, and telegraphs has evidently quickened the general business conditions, and with the increased activity and prosperity enlarged the consuming power. The railways now in the British colonies alone are more than 55,000 miles in length, the telegraph lines nearly 150,000 miles, and the highways far in excess of that. A large proportion of the railway lines is under the control and in many cases operated by the government, and it is an interesting fact that the lines operated by the government expend a smaller proportion of their total receipts

in running expenses than those operated by private corporations. In nearly all the colonies there are savings banks in conjunction with the post-offices, and the deposits in the savings banks of the colonies amount to more than $300,000,000.

In the import trade of Great Britain the colonies also prove advantageous from the British standpoint. Over one-fifth of the more than two billion dollars which Great Britain sends outside of her immediate limits in purchase of supplies is spent among the people of her colonies and thus largely contributes to the prosperity of either British colonists or British capital. That the industries of the colonies are to a considerable extent controlled by British capital goes without saying, and that the expenditure of nearly 500 million dollars of British money in British colonies each year for the products of those colonies must benefit the capital thus employed and so reflect to the business advantage of the home country, whence that capital is drawn, is equally apparent. The total imports into Great Britain from the colonies in 1896 were over 93 million pounds sterling, and in 1891 were over 99 million pounds sterling, or, in round terms, 500 million dollars, forming more than one-fifth of the total imports into the United Kingdom.

Considering the commercial side of the recent developments in the relations of the United States with Cuba, Puerto Rico, Hawaii, and the Philippines, three questions arise:

1. Will these islands in the new relations furnish an increased market for our surplus products?

2. Will any of them prove a door through which a still larger market may be found for our surplus products?

3. Will they supply any considerable share of the products for which we have been accustomed to expend money in foreign countries and thus permit its expenditure among our own people or in support of industries represented by the capital of our own people?

The imports into Cuba, Puerto Rico, Hawaii, and the Philippines under normal conditions have reached nearly or quite 100 million dollars annually, and with the developments consequent upon new methods and the inflow of American capital seeking investment would naturally materially increase. This, however, is but a small sum compared with the markets offered by the countries commercially adjacent to the Philippine islands and to which the port and city of Manila might prove an entrepot for the distribution of American products. The population of the

countries commercially adjacent to the port of Manila is more than 800 millions of people, and their annual imports more than $1,200,000,000. Of this vast sum a large proportion is composed of articles and classes of articles produced or manufactured in the United States, especially cotton and cotton goods, manufactures of iron and steel, machinery, mineral oils, provisions, breadstuffs, and other articles of this class for which our people are seeking a market. Up to this time imports into those countries from the United States formed less than 6 per cent of the total importations, despite the fact that the articles desired by the people are largely of the class which our own people desire to sell. With a Nicaraguan canal through which the manufacturers and producers of the United States could ship their products by water without breaking bulk from the door of the farm or factory to a distributing center at Manila, which lies as near to many of the great commercial centers of these countries as Habana does to the city of New York, there seems no good reason why the people of the United States desiring to extend their commerce should not obtain a much larger share of the business of that great consuming territory thus accessible from that point than they now have.

Regarding the third point, as to our present expenditure for the class of articles which may be produced in those islands: the importation of articles of this class into the United States, including sugar, coffee, tobacco, hemp, tropical fruits, etc., has averaged during the past few years nearly or quite 250 million dollars annually, and if this sum, now sent each year to foreign countries, can be expended among people having closer relations with the United States, and among whom citizens of the United States will be represented, either in person or by the capital which they will furnish for business enterprises, the result will be advantageous to the business interests of the country and her people.

If the United States should by the proposed new relationship with these islands open them as a market to our producers and make them a doorway to a much larger market, and at the same time enable us to expend among our own people the large sum which we have been accustomed to send to other countries and to other peoples, the suggestion seems at least worthy of serious consideration.

Colonies, Dependencies, and Protectorates of Nations of the World, Showing Area and Population of the Colonial Possessions, Protectorates, Dependencies, and "Spheres of Influence" of each Country.

[Compiled from the Statesman's Year-Book, 1898.]

Countries.	Number of colonies.	Area (square miles).		Population.	
		Mother country.	Colonies.	Mother country.	Colonies.
United Kingdom (*a*)...	48	120,979	11,250,412	39,824,563	344,059,122
France	32	204,092	3,617,327	38,517,975	52,642,930
Germany	8	208,830	1,020,070	52,279,915	10,600,000
Netherlands	3	12,648	802,863	4,928,658	33,911,744
Portugal	9	36,038	801,060	5,049,729	9,216,707
Spain.....	3	197,670	245,877	17,565,632	256,000
Italy	2	110,646	104,000	31,290,490	650,000
Austria-Hungary.....	2	240,922	23,262	41,231,342	1,568,092
Denmark.....	3	15,289	86,614	2,185,235	114,229
Russia.....	3	8,516,139	255,550	126,683,312	5,684,000
Turkey.....	4	1,115,067	564,500	24,128,690	17,489,000
China.....	5	1,336,841	2,884,560	386,000,000	16,680,000
United States (*b*).....	4	3,557,000	168,287	75,194,000	10,177,000
Total.....	126	15,672,161	21,824,382	844,879,541	503,048,824

(*a*) Includes feudatory native states of India, whose area is 731,944 square miles; population in 1891, 66,060,479.

(*b*) Subject to ratification of pending treaty.

Note.—The above statements of area and population of British territory include the native feudatory states of India, of which Whitaker's Almanack, published in London for 1899, says that they "are subject to the control of the supreme (British) government, which is exercised in varying degree, being, generally speaking, governed by native princes, ministers, or councils, with the help and under the advice of a political officer of the supreme government." The Statesman's Year-Book, published in London, also includes them in its table of area and population of the British Empire, giving their area at 731,944 square miles; population, 66,060,479.

LLOYD'S JOURNEY ACROSS THE GREAT PYGMY FOREST

Mr Albert B. Lloyd, an intrepid young Englishman, recently performed a remarkable journey across the great pygmy forest of Central Africa, which he traversed by a more southerly route than that taken by Stanley. After many interesting adventures with the pygmies, he descended the entire length of the Aruwimi, passing through immense tracts of forest inhabited only by cannibals. He afterward descended the main Kongo river to the terminus of the railway, whence he traveled to Matadi by train. Although much of the route had never before been explored, Mr Lloyd performed his hazardous journey without any companions save a couple of Baganda servants and a few

native carriers. He, however, met with no serious difficulty from the natives and had not to fire a shot in self-defense.

Interviewed at Lisbon by a representative of Reuter's news agency, Mr Lloyd said:

"I left Bamutenda in Toru on September 19, striking due south to Fort Katwe, the British military station on the northern shore of Lake Albert. Thence I followed the Semliki river to M'beni, the frontier fort of the Kongo State. There I crossed the Semliki into Belgian territory. From this point I crossed through the heart of the great pygmy forest, the northern part of which was traversed by Stanley. After passing through the forest I traveled right down the Aruwimi to the junction of that river with the Kongo. Although a portion of the journey, especially along the Aruwimi and through the dark forest, was somewhat risky, I met with no serious opposition. I never had to resort to the use of arms. I was entirely unaccompanied by Europeans until I reached the Belgian State station at Basoko on the Kongo. My caravan consisted of two Baganda boys as personal servants and a few native carriers. Guides I obtained at the various villages en route."

As to the situation in Toru, Mr Lloyd said:

"Since the administration of Captain Sitwell in that province marvelous progress and improvement have been made. When I first went there two years ago there was constant trouble with the chiefs and the natives, but now matters go on very smoothly. The chiefs recognize the King who was placed there by Captain Lugard and loyally obey him. It is very significant that, owing to the loyalty of the Watoro, Mwanga's people, despite repeated efforts, have never crossed Toru, but have met with continual repulses. It is a matter of great congratulation that the force of 120 Sudanese in Toru under Captain Sitwell has remained absolutely loyal during the whole of the rebellion. This is the only province of Uganda which has not been disorganized, owing to the late mutiny. Just after I left, Captain Sitwell and Captain Meldon started on an expedition to check the rebels under Gabrieli, Mwanga's commander-in-chief, who was attempting to proceed to the north to join the ex-King of Uganda in Unyoro. King Kasagama, of Toru, is a thoroughly reliable and indeed exemplary man. Baptized by Bishop Tucker in 1896, he has since lived a thoroughly consistent Christian life."

Describing his journey and his experiences with the pygmies, Mr Lloyd continued:

"During the first ten days' traveling through Toru nothing of a specially noteworthy character occurred. I reached the Belgian frontier post of M'beni on October 1, and then entered the great dark forest. Altogether I was twenty days walking through its gloomy shades. I saw a great many of the little pygmies, but, generally speaking, they kept out of the way as much as possible. At one little place in the middle of the forest, called Holenga, I stayed at a village of a few huts occupied by so-

called Arabs. There I came upon a great number of pygmies, who came to see me. They told me that, unknown to myself, they had been watching me for five days, peering through the growth of the primeval forest at our caravan. They appeared to be very frightened, and even when speaking covered their faces. I slept at this village, and in the morning I asked the chief to allow me to photograph the dwarfs. He brought ten or fifteen of them together, and I was enabled to secure a snapshot. I could not give a time exposure, as the pygmies would not stand still. Then with great difficulty I tried to measure them, and I found not one of them over four feet in height. All were fully developed. The women were somewhat slighter than the men, but were equally well formed. I was amazed at their sturdiness. Their arms and chests were splendidly developed, as much so as in a good specimen of an Englishman. These men have long beards half way down the chest, which imparts to them a strange appearance. They are very timid and cannot look a stranger in the face. Their eyes are constantly shifting as in the case of monkeys. They are fairly intelligent. I had a long talk with the chief, and he conversed intelligently about the extent of the forest and the number of his tribe. I asked him several times about the Belgians, but to these questions he made no reply. Except for a tiny strip of bark cloth, men and women are quite nude. They are armed with bows and arrows—the latter tipped with deadly poison—and carry small spears. They are entirely nomadic, sheltering at night in small huts two to three feet in height. They never go outside the forest. During the whole time I was with them they were perfectly friendly.

"There are no Europeans in any part of the forest, but there are a few villages containing three or four houses, which are known as auxiliary Belgian stations. They are occupied by so-called Arabs, who have been placed there by the Belgians. In parts I found a fairly good track, perhaps a couple of feet wide, overhung and crossed by boughs and enormous creepers, but, generally speaking, it was easier to cut our way right through the tropical growth. In places the darkness was very great. Once I tried to photograph my tent at midday, but even with nearly half an hour's exposure the attempt was a failure. Occasionally I came upon a very small natural clearing, but generally speaking the growth was very dense and it was like advanced twilight. In many places it was impossible to read even at noon. I walked during the three weeks I was going through the forest, as, although I had a donkey with me, if I had ridden him I should have continually been pulled off by the creepers. We had several narrow escapes from falling trees. On one occasion my two boys and myself, who were at the head of the party, had just passed under an enormous tree when it fell with a crash between us and the rest of the carriers. Had we passed two seconds later it would have fallen on us. I measured one tree which had fallen across the track and found it to be 20 feet in circumference. The deathlike stillness of the forest was continually broken by reports like thunder as these giant trees fell crashing to the ground. At night-time these reports were most startling. The forest is literally alive with elephants, leopards, wild pigs, buffalo, and antelope. Fires at night kept off any leopards

that might have been prowling round our little encampment. At night I used to fasten my tent to the trunks of trees and surround the camp with a zariba of small trees. We never had a guard at night.

"The first Europeans I met after leaving the forest were two Belgian officers at a place called Mawambi, on the Ituri river. Just after reaching that place I again struck Stanley's route, and marched for ten days along the banks of the Ituri to the village of Avakubi. Traveling here was very difficult, in fact almost as bad as in the great forest. The tracks were all overgrown and the country practically uninhabited. Its only occupants were cannibals. At Avakubi, which place I reached on October 20, I got two large dugout canoes and embarked on the Aruwimi. The natives rigged up a little covering on one of the boats for protection from the sun, and this nearly cost me my life. I was in this boat and we were just starting down a strong rapid when the craft began to sink, and I was unable to get free of the covering. I eventually got to the surface in an exhausted condition, but I lost a large number of photographs. Ten days' journey down the Aruwimi brought us to its junction with the Kongo at Basoko. This was regarded as a very quick journey, but we were, of course, going down-stream. During this section I passed through the country of the cannibal Bangwa tribe, a very warlike people, who are noted for their wonderful workmanship in iron, which they make into spears, knives, etc. They are at present more or less cowed by the Belgians, but I doubt if this condition of affairs will be permanent, and I believe the Belgians will have trouble with them yet.

"There are many Kongo State posts down the Aruwimi with white officers, and apparently they manage to keep on fairly good terms with the cannibals by whom they are surrounded. Personally I was received most kindly by these cannibals. They are, it is true, warlike and fierce, but open and straightforward. I did not find them to be of the usual cringing type, but manly fellows who treated one as an equal. I had no difficulty with them whatever. At one place I put together the bicycle I had with me, and, at the suggestion of these people, rode round their village in the middle of a forest. The scene was remarkable, as thousands of men, women, and children turned out, dancing and yelling, to see what they described as a European riding a snake. At Basoko on the Kongo I embarked in the river steamer Ville de Bruxelles and came down the river, calling at stations en route. After a journey of 600 miles in the boat I reached Leopoldville on November 24. There I joined the railway, which I may say is one of the most wonderful things I have seen in Africa. I traveled in an armchair in an excellent saloon carriage, and finally reached Matadi, whence I proceeded to join the Portuguese mail steamer for Lisbon."

Asked in conclusion for information concerning the many reported military movements on the Kongo, Mr Lloyd replied:

"According to report, Baron Dhanis was on an expedition in the Kasai district, and from what I heard he was experiencing great difficulty, especially in the matter of transport, owing to the swampy character of

the country. The only other expeditions I heard of were those of Lieutenant Henry, who was on the way from Stanley Pool to Lado, and of Major Lothaire, who had just left Bangala for the north. I saw large numbers of troops being trained at Bangala. Generally speaking, the whole Kongo was quiet—certainly tranquillity prevailed along the river. An expedition was about to be sent north of Basoko against a very hostile tribe. It was reported that it was not safe for any European to go more than two hours' journey to the north of Basoko. At this place I stayed with Captain Guy Burrows, who is commandant of the Aruwimi district, and who helped me considerably. The influence of such men and of other Englishmen who are now in the Kongo State service is doing a great deal to check excesses which were formerly so common."

During the whole of his journey Mr Lloyd enjoyed good health, having only two very slight attacks of fever.

GROWTH OF MARITIME COMMERCE

In his admirable paper on Maritime Commerce: Past, Present, and Future, which appears in the Proceedings of the American Association for the Advancement of Science, 1898, Dr E. L. Corthell, the eminent engineer, states that during the fifty years that have elapsed since the formation of the American Association the weight of the seaborne commerce of the world has increased from 26,500,000 tons in 1848 to 201,000,000 tons in 1898, and the total number of steamships from 242, with a tonnage of 74,700 and an indicated horse-power of 2,000,000, to 11,271, with a tonnage of 17,889,006 and an indicated horse-power of 60,000,000. The average length of the twenty largest steamships has increased from 230 feet to 541 feet, the average breadth from 36.2 feet to 61 feet, and the average depth from 23 feet to 39 feet. The average speed of the twenty largest steamships has increased from 9.2 knots to 18 knots, and that of the twenty fastest steamships from 10 knots to 22 knots.

Dr Corthell states that draught of water for the steamships of the present and future is the desideratum to which urgent attention should be called by all who desire the continued development of commerce and the still further cheapening of transportation and reduction of prices. Twenty-seven feet is now the extreme limit of depth to which a ship can load on either side of the Atlantic. While the great Atlantic liners are increasing in length and breadth, the draught of water has to be kept the

same, and it is only a question of time when an absolute limit of speed will be imposed by this restriction of draught. The remedy is to be found in the deepening of channels and harbors and the improvement of docks. Liverpool is being improved beyond all other ports of the world, widening and deepening its docks to accommodate vessels up to 900 feet in length and to 90 feet beam and 36 feet draught. Improvements upon a smaller scale but still of considerable importance are either in progress or in contemplation at London, Hamburg, Antwerp, New York, Boston, Philadelphia, New Orleans, and Galveston, while the depth of the Suez canal has been increased from 26 feet 28½ feet, and plans have been prepared for a further deepening to 30 feet,

It will be seen from these brief references that Dr Corthell's paper contains a large amount of interesting information not hitherto accessible to the general reader, and in view of the growing recognition of the absolute interdependence of nations its present publication is most timely.

J. H.

NATIONAL GEOGRAPHIC SOCIETY

Prizes for Essays on Norse Discoveries in America

The National Geographic Society offers two prizes for the best essays on Norse discoveries in America; these prizes to be awarded under the following conditions:

1. A first prize of $150 and a second prize of $75 are offered for the best and second best essays, respectively, relating to pre-Columbian discoveries and settlements of the Norsemen on the mainland of North America and the location of the lands mentioned in the Icelandic Sagas.

2. Essays submitted in competition for these prizes should be typewritten in the English language, and should not exceed 6,000 words in length; they may be accompanied by maps and other illustrations used for the explanation of the text, but not for embellishment.

3. Essays submitted in competition for the prizes should be signed by a pseudonym or number, and should bear no other indication of authorship, but each should be accompanied by a sealed envelope, marked with the same pseudonym or number, containing the name and address of the author.

4. The competition will close at 6 p. m., December 31, 1899.

5. The National Geographic Society and the judges on behalf thereof reserve the right to withhold either prize, or both, in case the essays submitted are not sufficiently meritorious to warrant publication with the approval of the Society; but in case of withholding one or both of the prizes on this ground, a new competition will be opened.

6. Immediately after the close of the competition the essays submitted in accordance with the foregoing conditions will be laid before the following board of judges, whose adjudication shall be final:

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ALBERT BUSHNELL HART, Ph. D., Professor of History in Harvard University.
ANITA NEWCOMB MCGEE, M. D., Acting Assistant Surgeon, U. S. A.
JOHN BACH MCMASTER, LL. D., Professor of History in the University of Pennsylvania.
HENRY S. PRITCHETT, Superintendent of the U. S. Coast and Geodetic Survey.

Prof. W. B. Powell, Superintendent of Schools of the District of Columbia, is Chairman of the Prize Committee of the Society's Board of Managers.

SENOR DON MATIAS ROMERO

In the death of Señor Don Matias Romero, Envoy Extraordinary and Minister Plenipotentiary of the Republic of Mexico to the United States, which occurred at his residence in the city of Washington, December 30, 1898, the National Geographic Society has lost one of the most interested and appreciative of its members, and one of the most constant attendants at its meetings. Other scientific and educational institutions of this country likewise have lost a warm friend and liberal contributor.

Señor Romero first came to the United States in 1859, as secretary of the Mexican Legation, and he has remained here, with the exception of about four years, ever since. On account of his superior ability as a diplomatist he has been promoted from time to time, until just before his death—and before his credentials could be presented to the President—he had reached the highest diplomatic position to which his country could assign him, that of Ambassador to the United States.

From his long residence among us and his personal interest in our affairs—in fact in all but his allegiance to his native country—he was one of us. No representative from any foreign country was more respected and beloved by the people of the United States, and the tie that bound him to us was made closer by his marriage to an American lady. In the national capital, where he was a prominent figure for more than a third of a century, his memory will long be cherished.

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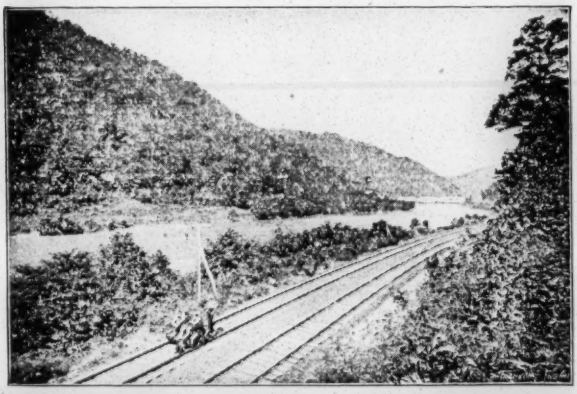

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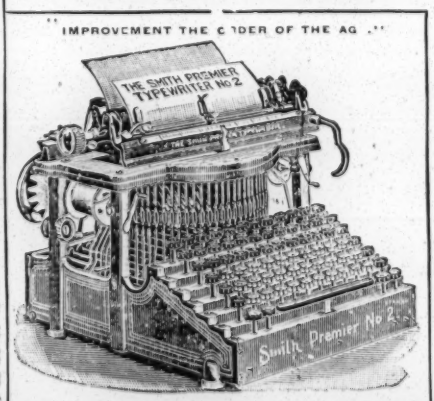

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